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and the lure of commercial betterment sent many citizens of the early Trans-Allegheny commonwealths to the Spanish side of the Mississippi,* while the Natchez District on the east bank of the river contained a sprinkling of French who had become dissatisfied with Spanish rule in Louisiana and changed their domicile.

These are some of the movements of individuals and groups which contribute to the blending of races along every frontier, and make of the boundary a variable zone as opposed to the rigid artificial line, in terms of which we speak.

* Justin Winsor, *The Westward Movement*, p. 366. Boston, 1899.

VIRGINIA TRADE AND COMMERCE.

BY

G. T. SURFACE.

Excepting the complicated factor of human traffic, the commercial relations in Virginia under slavery were surprisingly simple, as compared with the social ideals and customs of the time. The explanation for this is manifest, in that the large labour surplus enabled the owners to be producers of most of the articles consumed, and at the same time produce a large surplus of tobacco, the most profitable commodity in the export trade. In 1790, Virginia ranked first in the total value of exports (\$3,131,865). By 1830 the export trade had increased to \$4,791,644; while for the same year the imports only aggregated \$405,739, showing how adequately the demands were met by the home manufacturers.

The passing of the War crisis, with its destruction to life and property, and the emancipation of slaves, made necessary a new system of production, which in turn brought about a reactionary adjustment of Virginia's commercial relations. The decade following the Civil War is the period which marks the beginning of a new era in the industrial and commercial development of the State. We shall, therefore, discuss briefly the factors which gave impetus and foundation to the succeeding order. The immediate and most urgent demand was to become self-sustaining, by the production of food-stuffs and clothing, since all of the surplus had been consumed during the four-years' struggle, which centred on Virginia territory, and from which the people of the State suffered most. Co-ordinate with this was the demand for restoring the property losses incurred.

Notwithstanding the fact that thousands of negroes migrated to the cities of the North and the cotton fields of the South, there was still a surplus of negro labourers, but thoroughly disorganized and demoralized; and few of the landowners had the capital with which to employ labour. Capital far in excess of the surplus had been invested in negroes, so that bankruptcy was more general than surplus capital. The large tobacco surplus was, therefore, ruled out by the conditions at home, and a diversified agricultural production on a small scale made necessary. This initiative was promoted and fostered by conditions outside of the State. Cotton rose to fabulous prices, and in the cotton States all energy was bent to a maximum production. They could not afford to raise poor corn and wheat crops on good cotton land, when cotton was selling at fifty to sixty cents per pound. There developed, in consequence, a great demand for provisions in the cotton States. The border States—Virginia, Tennessee, and Kentucky—were adapted to grains, grasses, and the live-stock industries, but not to cotton. The stimulus for diversified agriculture in these States was therefore much intensified by the situation in the cotton States. But the situation in the North was no less favourable toward this same development. While the South had been purchasing negroes and growing negroes, the North had been building factories, extending trade, and accumulating a large surplus. As the war progressed prices rose and Northern industries flourished, as a result of which there was more money in the North at the close of the war than at the beginning. Following the war the demand for cotton and woollen goods, farming implements, and labour-saving machinery was unprecedented, and so the Northern factories entered upon a new era of development and prosperity, which rapidly increased the urban population. As a result, instead of the manufacturing States having a surplus of food-stuffs, they could scarcely supply the home demand.

Without discussing the beneficial effects of emancipation upon the production and trade of the State, it must be apparent to every student of Virginia's economic and industrial development that the change in the system was most fortunate. It induced an unwonted economy, which of itself was a discipline of far-reaching importance; discontinued the general practice of wholesale timber destruction; labour-saving machinery was purchased; the soil better cultivated; the property improved; the children schooled; and the surplus gradually increased.

Virginia is just now entering upon another era of industrial development, which may be characterized as the *era of scientific*

agriculture and diversified manufacture. This was made possible by the sounder and more economic bases of the *post-bellum* policies.

We shall discuss the present trade conditions under the following divisions: Intra-State Commerce, or the sale and exchange of products between different sections of the State: Inter-State Commerce, the trade relations with other States; and Foreign Commerce.

INTRA-STATE COMMERCE.

REGIONAL.*—The distinct zones of production conform in general to the natural geographic divisions.† *Tidewater* produces a large surplus of garden products, peanuts, fish, and oysters, and these are the most important shipments westward; but they are more than balanced by the coal, lumber, hay, grain, and tobacco received from the western part of the State for home consumption.

Piedmont‡ produces a smaller surplus proportional to its area than either Tidewater or the Valley, but its productions are so varied that the deficiency of one part of the region could be supplied from the surplus of another, if developed with reference to economic adaptation. Coal from Appalachia is the most important shipment into Piedmont. Tobacco§ constitutes the largest surplus of southern Piedmont, and live-stock the largest of northern Piedmont. Fully three-fourths of the total tobacco crop is manufactured within the area. The important manufacturing and distributing points are Richmond,|| Petersburg,¶ Lynchburg, Danville, Chatham, and Martinsville.

The trade of *Blue Ridge* consists chiefly of the sale of live-stock, lumber, and fruits; and the purchase of furniture, groceries, clothing, and machinery. This plateau section has more live-stock** per square mile than any of the other geographic divisions.

The *Valley* produces a large surplus of grain, hay, live-stock, winter vegetables, and fruit. A large part of the provision surplus of the southern Valley is marketed in the mining districts of Virginia-West Virginia, which is contiguous territory. There is still a small surplus of forest products, but the cultivatable land is being rapidly

* Production and trade of cities will be considered under a separate head.

† The natural geographic divisions of the State are Tidewater, or the Coastal Plain; Piedmont, or the plateau region; the Blue Ridge; the Valley; and Appalachia.

‡ Middle Virginia is here considered as a part of Piedmont.

§ Sixteen counties in Piedmont produced, in 1900, more than 3,000,000 pounds each. Pittsylvania ranked first, 17,088,550 pounds; Halifax second, 13,077,200 pounds; and Mecklenburg third, 7,368,220 pounds.

|| On the Piedmont-Tidewater boundary.

¶ Floyd, Carroll and Grayson are the only counties situated wholly in this division.

** Cattle, 33 per square mile; sheep, 46.3 per square mile (1900).

deforested, and cannot be reckoned as an important and permanent factor of trade.

The wealth of the Valley is greater *per capita* than is that of any other division, which makes it a large purchaser of farming implements, household furniture, and general merchandise.

Appalachia produces a large surplus of coal, coke, lumber, and live-stock. The coal is shipped to all parts of the State. The cattle are marketed locally, in the eastern cities, and as exports. Tazewell, Russell, Craig, Bland, and Giles counties form the agricultural belt of Appalachia, by virtue of a large part of the area having a strong residual limestone soil. Live-stock—especially small cattle and sheep—and lumber are the important sources of revenue in northern Appalachia.

The mining counties—Wise, Russell, Buchanan, Dickenson, and Lee—are large purchasers of provisions, merchandise, mining machinery, draft horses, and alcoholic drinks.

CITIES.*

Since no separate record of the State and inter-State traffic is kept, it is impossible to give figures as to the exact amount of shipments from the manufacturing and distributing points. The discussion is, however, based upon a careful study of the inter-State and foreign trade, reports and statements from the various Boards of Trade, and personal observations in representative sections.

Richmond ranks first in population; is served by more railroads than any other point in the State; is largest manufacturing, jobbing, and distributing centre; and is the most centrally located† city in the State. There were 1,554 factories in operation in 1906, the sales of which aggregated \$77,432,692. Of the manufactures, tobacco led with 59 factories, and a total product of \$20,195,336. The following valuations are given for the respective classes of manufactures: Iron products (including farming implements), \$9,876,482; fertilizers, chemicals, iron and cement products, \$8,376,120; and leather products, \$3,361,077. The jobbing trade for 1906 aggregated \$61,524,275. All of the important articles of manufacture are sold throughout the State.

The largest purchases made by the city consist of tobacco, lumber, grain, flour,‡ leather, vegetables, and poultry products.

* This part of the discussion relates only to the *intra-state trade* of the cities.

† If we draw a circle around Richmond as the centre on a radius which will include Accomac County, this circle will include four-fifths of the total Virginia territory.

‡ The Richmond Grain and Cotton Exchange received during 1905, 4,500,000 bushels of grain, and 162,200 barrels of flour.

Greater Norfolk (including Norfolk, Portsmouth, Berkley and U. S. Navy Yard).—Norfolk is not only Virginia's most important port, but one of the most important in the South. Among Southern ports it ranks first in lumber, first in peanuts, second in coal, and fourth in cotton shipments.

The city is situated at the junction of the southern and western branches of the Elizabeth River, which is tributary to the James River Estuary, of which Hampton Roads is the connecting channel with the Chesapeake Bay. The James River has no bar at its mouth, and there are 30 feet of water at low tide. The distance of Norfolk from the ocean is 32 miles, and from Hampton Roads 8 miles. As to the special advantages of the Norfolk harbour, I quote from the report of Commodore M. F. Maury: "Norfolk, be it remembered, with its deep waters, spacious harbors and free outlet between the Capes of Virginia to the sea, occupies geographically what the early discoverers thought would be, and what physical geography claims *is*, the most commanding commercial position along the whole Atlantic seaboard of the United States. Its natural advantages make it so."*

There are 30 miles of wharf frontage. The outer harbour contains 50 square miles of anchorage ground, with a depth of 50 feet; and the inner harbour (Elizabeth River and its branches) has 1,000 acres of anchorage ground, with a depth of 28 feet. Portsmouth† is just across the river from Norfolk, and has a harbour frontage of one mile.

The traffic of the southern branch of the Elizabeth River in 1905 showed a great increase over any previous year, being about 11,000,000 tons, valued at more than \$500,000,000.‡

Norfolk ranks first as a rehandling, and foreign and domestic export point; and in the variety and volume of manufactures ranks next to Richmond. The largest enterprise is the United States Navy Yard at Portsmouth, which employs more than 2,000 wage-earners at a total cost of \$2,000,000 per year. The following important industries enter into the general supplies and traffic of the State: Fertilizer, tobacco, lumber and iron mills, cotton factories, cotton compresses, packing-houses, peanut factories, fisheries, brick factories, farming implements, and shoe factories. The total value of manufactures was estimated for 1905 at \$34,400,000. Fertilizer, tobacco (manufactured), canned meats, peanuts, and oysters are

* Physical Survey of Virginia, M. F. Maury, 1876, p. 20.

† Considered a part of Greater Norfolk.

‡ Report of Chief of Engineers, U. S. Army, 1906, p. 238.

shipped to all parts of the State. The Norfolk jobbing and wholesale houses do a large business in Tidewater, eastern and south-eastern Piedmont, and North Carolina. It is the largest horse market in the South, the aggregate sales of 1905 being \$2,500,000.

The volume of the traffic going into Greater Norfolk far exceeds that of any other point in Virginia. The most important classes are in the order of tonnage: Lumber, iron, coal, grain, garden products, live-stock, cotton,* and tobacco. The lumber comes from Appalachia, the Valley, Blue Ridge, Piedmont, and from North Carolina, Tennessee, and West Virginia; the coal from Appalachia, the States of Kentucky and West Virginia; the grain and live-stock from all parts of the State, and the Middle West; the garden products from Tidewater and Piedmont chiefly, the cotton from Virginia, North and South Carolina; and the tobacco from Piedmont.

Newport News† is situated on the northern shore of Hampton Roads, 20 miles due west from Cape Henry. The depth of the water off piers is 60 feet. There are ten miles of water front, and good anchorage. The port is served by 18 regular steamship lines. The total tonnage for 1905 was 4,717,858 tons‡ valued at \$89,816,686. About three-fourths of the total tonnage consisted of coal and coke. It is the seaboard terminus of the Chesapeake and Ohio Railroad, which intersects more intra-State lines than any other road operating in the State, and about three-fourths of its traffic is supplied by the connecting lines. The most important classes of coast-bound traffic originating in Virginia are: Grain, live-stock, lumber, tobacco, and garden products. *Newport News* is an important distributing centre for merchandise, furniture, farming implements, and machinery, which go to all parts of the State north of the James River, and a small part is diverted to the connecting lines from the South.

Lynchburg.§—As an inland railroad centre Lynchburg ranks next to Richmond in importance. Although Lynchburg is now entirely an inland town, its early importance as a trade centre was fixed by the James River Canal, which was the most important transportation route from the seaboard to the interior part of the State, until the construction of the Norfolk and Western Railroad. Lynchburg was the handling station of all goods destined for south-west Virginia, western North Carolina, and the northern part of the east Tennessee

* 822,930 bales of cotton shipped from Norfolk in 1905, valued at \$40,000,000.

† Population, 28,749, in 1906.

‡ Tonnage in 1902, 2,663,669 tons.

§ Population 20,000 + in 1906.

country. The old Lynchburg-Knoxville pike was constructed for the convenience of this traffic. The James River ceased to be navigable above Richmond when it became unprofitable to operate the canal, after which time Lynchburg's importance was due to the trade stimulus as fixed by the old transportation régime, and the later railroad facilities. In total manufactures and the jobbing trade it ranks next to Norfolk. The 1906 factory output was valued at \$15,000,000. The important manufactures are: Shoes, foundry products, tanning extracts, cotton goods, flour, and farming implements. In the manufacture of shoes it ranks first among the cities of the South. The products are sold throughout Piedmont, and the western part of the State. Lynchburg is the largest shoe-distributing point in the South, and its shoes are sold, not only in all parts of Virginia, but throughout the South Atlantic States.

*Roanoke** may be justly termed a railroad town, as its size and trade have been largely produced by the Norfolk and Western Railroad, of which it is headquarters. The company employs 4,700 operatives, who have their homes in the city. It is situated on the main line (Bristol-Norfolk) of the Norfolk and Western railway, and is the southern terminus of the Shenandoah Valley and the northern terminus of the Roanoke and Southern railroads, both of which are owned and operated by the Norfolk and Western. The geographic location and railway service, therefore, make it the eastern gateway into south-west Virginia, and the southern gateway into the Valley. The jobbing and retail trade have steadily increased, and manufacturing enterprises have begun to be extensively developed. Roanoke will be a division terminus for the trans-State Tidewater railroad, which, added to its present prosperous trade relations, bids fair to make it the largest and most important exclusively inland city of Virginia. The most important outgoing shipments are: Groceries, iron products, general merchandise, and alcoholic drinks; and the most important incoming shipments are lumber, grain, vegetables, and tobacco.

Bristol† is located on the Virginia-Tennessee boundary, and, as the terminus of five different railroads, is an important rehandling station and distributing centre. It is southern Appalachia's most direct gateway to the south and east, and is, therefore, an important trade centre for that region, and the southernmost portion of the Great Valley.

Three of the railroads operating from the city as a base have their

* Population 30,000 in 1905.

† Population 15,000 in 1905.

General Offices there. It is also the headquarters of the Virginia Iron, Coal and Coke Company, with a capital of more than \$10,000,000. The most important manufactures are: Iron, lumber products, paper, tanning extract, tobacco, flour, and chemicals.

The value of the manufactures and trade has been more than doubled in the last decade. The manufactures of 1906 are valued at \$10,500,000; exclusive of lumber, coal, and iron products, valued at \$10,000,000. The jobbing trade aggregated \$9,000,000, which shows Bristol's importance as a distributing point.

*Danville** is at the crossing of the Southern and the Danville and Western railroads. It is the largest loose-leaf tobacco market in the world, handling from 45,000,000 to 55,000,000 pounds annually. Tobacco is the principal farm product of the region, and the most important article in trade. The city is situated on the Dan River, which has sufficient volume and favourable fall for the establishment of large factory enterprises. Already two cotton mills have been established, with a combined capital stock of \$4,500,000, which furnish employment to more than 4,000 wage-earners.

INTER-STATE COMMERCE.

Though Virginia is making marked progress in the development of manufacturing enterprises, these have not reached such proportions as to make the State an important purchaser of raw materials. The rapid development of cotton factories creates an increasing demand for raw cotton. In 1900 there were only 7 factories within the State; while in 1905 there were 32, which consumed 57,223 bales, an excess of 39,049 bales over the total production of the State. The most important shipments, therefore, from other States for domestic use consist of manufactured products. There are large shipments from other States into Virginia, destined for eastern and foreign markets, which require rehandling; and for these due allowance must be made in the consideration of the aggregate port trade, since no separate record is kept at the ports of the traffic originating within the State, and without the State. This rehandled traffic creates a large demand for labour, sorting, transfer, and shipping facilities, and in that way becomes an important factor in the State's traffic and trade. The products consist chiefly of lumber, cotton, and tobacco from North Carolina; lumber and live-stock from Tennessee; and lumber, coal, and coke from West Virginia.

Virginia produces a large surplus of raw and manufactured

* Population in 1900, 16,520.

tobacco, garden products, forest products, coal and coke, live-stock, and peanuts; and a small surplus of fruits, poultry products, leather, meats, and iron. These constitute the bulk of the outgoing tonnage, the major portions of which are sold in the North Atlantic and New England States. The most important markets are: New York, Philadelphia, Boston, Baltimore, and Washington. Large shipments of live-stock are made to Lancaster, Pennsylvania, from which point they are sold to the farmers of Pennsylvania for winter fattening.

The inter-State shipments of live-stock, tobacco, cotton, and vegetables are largely by rail. More than three-fourths of the seaboard lumber traffic, and more than one-half of the seaboard coal shipments, are by water. Cotton is shipped almost exclusively by water. The coastwise trade centres in Norfolk, Newport News, and Richmond.

FOREIGN COMMERCE.

The total imports into the State for 1905 were valued at \$10,885,628, and the exports at \$23,409,119. The imports were largely general merchandise, and the exports coal, live-stock, grain, flour, cotton, tobacco, lumber, and meats.*

Newport News.—The total exports† from this port for 1906 were valued at \$18,693,803, which is an increase of 18 per cent over 1905.‡ The following are the important classes, in the order of valuation: Flour, \$3,095,649; lumber, \$1,454,096; lard, \$1,231,201; copper, ingots, &c., \$1,100,623; tobacco, \$1,038,483; coal, \$925,275; linseed oil cake meal, \$869,632; cotton, \$506,056. The imports aggregated \$2,723,788, an increase of 26 per cent. over 1905.§ The following are the most important, in the order of valuation: Burlap, \$376,388; jute bags, \$336,025; plate-glass, \$265,546; alcoholic drinks, \$231,903; earthenware, \$165,403; and cocoanut oil, \$142,728.

Norfolk and Portsmouth.||—The following are the important exports from this port, in the order of valuation:|| Lard, \$1,180,441; coal, \$1,111,725; lumber, \$1,000,000; cotton, \$943,031; grain and flour, \$780,487; tobacco, \$329,729; and cattle, \$305,300. The total exports were valued at \$7,640,800 for the year ending December, 1905, as compared with \$8,256,519, the total imports for the same year, which consisted of merchandise, chemicals, alcoholic drinks,

* The coastwise trade for the same year was about twelve times the total foreign trade.

† Newport Custom House Report, 1906.

‡ Exports in 1905, \$15,750,310.

§ Imports in 1905, \$2,154,650.

|| In the same Custom House district.

¶ 1905.

burlap, etc. Norfolk is the ocean terminus of the Tidewater railroad, which crosses the State from east to west. Its construction is for the purpose of marketing the coal from one of West Virginia's richest fields. The grading in the Virginia portion is nearing completion, and the contracts demand that the road be ready for traffic by January 1908. It will probably be the heaviest coal carrier in the State, and will increase the coastwise and foreign traffic out of Norfolk at least 25 per cent.

It is generally believed that the Tidewater will finally be extended to the intersection with the Wabash railroad, and be consolidated with that system, in which event it would become one of the most important trunk lines.

ECONOMIC GEOGRAPHY AND ITS RELATION TO ECONOMIC THEORY AND HIGHER EDUCATION.

BY

J. RUSSELL SMITH.

Five years ago Stanley Hall, adopting a figure from European politics, called Geography the sick man of the curriculum. The charge is well founded, for it certainly has lagged behind other important subjects in being rationalized and receiving due recognition of its importance. In this latter respect it has not yet come into its inheritance. It has but lately emerged from the period in which its study consisted in the deadly exercises of memorizing in a blind way lists of cities, rivers, capes, and boundaries, and the acquisition of unexplained facts concerning the distribution of various classes of things.

The theory of evolution has paved the way for modern geography, which has had to await the development, spread, and general acceptance of the revolutionizing truths commonly associated with the name of Darwin. Organisms have been found to be capable of influence by their surroundings. Life is progressive because the organism responds to its environment and the environment changes. Here is a vast field for study. This environment, and its component elements, the resulting organic responses, constitute the field in which geography has worked. The field has by no means been